

APPENDIX D MITIGATION

Contained in this appendix is a discussion of general mitigation for the Project overall. Resource specific mitigation is contained throughout Chapter 3, in the resource discussions.

MITIGATION

Mitigation typically involves one or more of the following:

- *avoiding* the impact by not taking a certain action or part of an action
- *minimizing* impacts by limiting the degree of magnitude of the action and its implementation
- *rectifying* impacts by repairing, rehabilitating, or restoring the affected environment
- *reducing* the impact
- *compensating* for the impact by replacing or providing substitute resources or environments

As part of the Project description, the IPG is proposing to undertake certain measures to protect the environment as standard practice for the entire Project. These measures are referred to as “standard practice project mitigation” and are summarized in Table D-1. It is important to note that the impact levels initially assigned (initial impact levels) assume that the standard practice project mitigation measures are implemented.

Where warranted on a case-by-case basis, mitigation beyond these generic measures was recommended to reduce adverse impacts to an acceptable or lesser level. These are called selective mitigation measures, and they include those measures or techniques to which the Project proponents commit on a case-by-case, or selective, basis after impacts are identified and assessed. For purposes of evaluating the alternative routes at the environmental analysis stage of a project, selective mitigation measures provide a planning tool for minimizing potential adverse impacts. Table D-2 summarizes selective mitigation measures. A detailed mitigation plan will be created after any Record of Decision that will describe specific mitigation measures along the route.

**TABLE D-1
STANDARD PRACTICE PROJECT MITIGATION MEASURES
INCLUDED IN THE PROJECT DESCRIPTION**

1	All construction vehicle movement outside the right-of-way will be restricted to predesignated access, contractor acquired access, or public roads.
2	The areal limits of construction activities will be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
3	In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for resprouting.
4	In construction areas (e.g., marshaling yards, tower sites, spur roads from existing access roads) where ground disturbance is substantial or where recontouring is required, surface restoration would occur as required by the landowner or land-managing agency. The method of restoration would normally consist of returning disturbed areas back to their natural contour and reseeded (if required).
5	Towers and/or conductors would be marked with high-visibility devices where required by governmental agencies (FAA).
6	Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address (a) federal and state laws regarding antiquities and plants and wildlife, including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.
7	The IPG would continue to consider cultural resources during post-EIS phases of project implementation in accordance with the programmatic agreement that would be developed in conjunction with preparation of the environmental impact statement. This would involve intensive surveys to inventory and evaluate cultural resources within the selected corridor and any appurtenant impact zones beyond the corridor, such as access roads and construction equipment yards. In consultation with appropriate land-managing agencies and state historic preservation officers, specific mitigation measures would be developed and implemented to mitigate any identified adverse impacts. These may include project modifications to avoid adverse impacts, monitoring of construction activities, and data recovery studies.
8	The IPG would respond to complaints of line-generated radio or television interference by investigating the complaints and implementing appropriate mitigation measures. The transmission line would be patrolled by air on a regular basis so that damaged insulators or other line materials that could cause interference are repaired or replaced.
9	The IPG would apply necessary mitigation to eliminate problems of induced currents and voltages onto conductive objects sharing a right-of-way, to meet the appropriate codes.
10	Stream crossings will be as near as possible at right angles to streams. Bridges or culverts would be installed where necessary. All construction and maintenance activities shall be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks. Towers will be sited with a minimum distance of 200 feet from streams.
11	All requirements of those entities having jurisdiction over air quality matters would be adhered to and any necessary permits for construction activities would be obtained.
12	Fences and gates would be repaired or replaced to their original predisturbed condition as required by the landowner or the land-managing agency if they are damaged or destroyed by construction activities. Temporary gates would be installed only with the permission of the landowner or the land-managing agency; and would be restored to its original predisturbed condition following construction.
13	During operation and maintenance of the transmission line, the right-of-way would be maintained free of non-biodegradable debris resulting from IPG activities.
14	Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash. All construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials shall be removed to a disposal facility authorized to accept such materials.

TABLE D-1 STANDARD PRACTICE PROJECT MITIGATION MEASURES INCLUDED IN THE PROJECT DESCRIPTION	
15	No construction camps will be established along the right-of-way. Construction crews are expected to be able to find housing within communities in the study area. Construction crews will be transported to work sites daily.
16	Pre-construction surveys for plants and wildlife species designated as sensitive or of concern will be conducted in areas of known occurrence or habitat as stipulated by the land-managing agency during the development of the Construction, Operation, and Maintenance Plan once the transmission line centerline, access roads, and tower sites have been located and staked in the field.
17	Care will be taken to reduce the possibility of bear-human interactions during construction. Construction camps will not be established along the right-of-way and any waste generated during construction will be properly stored and disposed of, so that bears are not attracted to construction areas. Bear training will be provided to personnel.
18	Engineering design will include safeguards to prevent or reduce the possibility of fluid leaks due to damage to the cable from natural hazards in submarine and terrestrial environments.
19	Trenching of submarine cables in coastal marsh lands will be backfilled and reclaimed. To the extent practicable, construction will be completed during winter months to avoid damage to areas of sensitivity.

TABLE D-2
SELECTIVE MITIGATION MEASURES

1	In areas where soils and vegetation are particularly sensitive to disturbance, existing access roads will not be widened or otherwise upgraded for construction and maintenance, except in areas where repairs are necessary to make existing roads passable.
2	To avoid disturbance to sensitive features (e.g., streams, recreation trails), access roads will not be constructed in those areas. Rather, construction and maintenance traffic will use existing roads or cross-country access routes (including the right-of-way). To minimize ground disturbance, construction traffic routes must be clearly marked with temporary markers such as easily visible flagging. The construction routes or other means of avoidance must be approved in advance of use.
3	To minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape, the alignment of any new access roads or cross-country route will follow the landform contours in designated areas where practicable, providing that such alignment does not impact resource values additionally.
4	To limit new or improved accessibility into the area, all access that is undesired or not required for maintenance will be closed using the most effective and least environmentally damaging methods appropriate to that area and developed with concurrence of the landowner or land manager. Low growing, native shrubby vegetation such as alders will be planted within the right-of-way.
5	To minimize ground disturbance, operational conflicts, and/or visual contrast, the tower design will be modified or an alternative tower type will be used.
6	To minimize the amount of sensitive features disturbed in designated areas, structures and access roads will be placed so as to avoid sensitive features such as, but not limited to, riparian areas, watercourses, residential uses, and cultural sites, and/or to allow conductors to clearly span the features, within limits of standard tower design. Avoidance may be accomplished by spanning sensitive features, shifting the alignment to the opposite side of an existing line, or realigning the route.
7	To reduce visual contrast and/or potential operational conflicts, standard tower design will be modified to correspond with spacing of existing transmission line structures where feasible and within limits of standard tower design. The normal span will be modified to correspond with existing towers, but not necessarily at every location.
8	To reduce visual impacts, potential impacts on recreation values and safety at highways and trail crossings, towers are to be placed at the maximum feasible distance from the crossing within limits of standard tower design.
9	“Dulled” metal or corten finish on towers will be used to reduce visual impacts.
10	With the exception of emergency repair situations, the construction, restoration, maintenance, and termination activities in designated areas (e.g., buffer zones) will be modified or curtailed during sensitive periods (e.g., nesting and breeding periods) for sensitive animal species. Sensitive periods and areas of concern would be approved in advance of construction or maintenance by the authorized officer. Winter construction during frozen conditions would be an alternative for avoiding sensitive periods or areas of wildlife concern, soft and wet ground conditions, and stream crossings.
11	Helicopter placement of towers during construction and helicopter patrol and maintenance may be used to reduce impacts.
12	To reduce visual contrast or avoid features (such as, but not limited to, land uses, jurisdiction, biological or cultural resources sites), clearing of the right-of-way will be minimized or in limited instances the right-of-way may be reduced (within the limits of conductor-clearance requirements and standard tower design).
13	To minimize disturbance to vegetation resources and reduce visual contrast, clearing of trees in and adjacent to the right-of-way will be minimized to the extent practicable to satisfy conductor-clearance requirements (National Electric Safety Code). Trees and other vegetation will be removed selectively (e.g., edge feathering) to blend the edge of the right-of-way into adjacent vegetation patterns, as practicable and appropriate.

TABLE D-2 SELECTIVE MITIGATION MEASURES	
14	Construction near anadromous fish streams will be timed and carried out in a manner that minimizes any potential impacts on subsistence, sport, and commercial fishing efforts, including avoidance of construction along anadromous streams during the peak salmon run periods.
15	To avoid disturbance to coastal bluffs and marsh lands in the Anchorage Coastal Wildlife Refuge, submarine cables will be installed with horizontal directional drilling.
16	Transmission line will be placed underground, where required, in parks and in the flight path of airstrips and airports.
17	To minimize visual impacts, submarine to overhead transition facilities will be placed within a small enclosed building in context with the surrounding architecture.
18	Routine checks of the insulating fluid system of submarine cables will be made. In the event of a cable break, the Alaska Department of Environmental Conservation will be notified and cables will be de-energized to minimize the fluid pressure and discharge rates. Cables will be repaired/replaced in a manner that minimizes environmental impacts and fluid loss.
19	Line diverters, spheres, or marking of lines will make them more visible to birds.
20	Burying small diameter wires may be considered in sensitive areas.

Once initial impacts were identified for each resource along the reference centerlines of the alternative routes, selective measures were recommended to mitigate potentially significant or significant impacts where warranted. Residual impacts are impacts remaining after mitigation has been applied. Potential residual impacts were reported on maps and tables that identify the locations and magnitudes of potential resource impacts along the reference centerline. The preliminary results of impact assessment and mitigation planning were documented by link in resource analysis studies.